عنوان مقاله:

Comparative Study of Trace Level of Extracted Mercury in Different Water Samples with Aided Multivariate Statistical Analysis

محل انتشار:

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خلاصه مقاله:

Comparative study of trace level of extracted mercury in different types of water was successfully carried out. Data sets of batch samples were grouped in two clusters (C I; 4, C II; 4) to represent similarity of data structure under optimized and direct extraction procedure respectively. Similarity level for inter batch samples (optimized procedure) was obtained in the range of 96.7 – 99.2 %; which was better than by direct extraction (67.2 – 92.5 %) with mean distance from centroid was calculated at 0.462. The first two components (PC1 and PC2) on score plot explained about 86.2 % (ultrapure) and 73.9 % (salt water) of the total variance in signal data sets. In discriminant analysis, latent variables namely pH, extraction time and temperature were able to enhance the correctness of inter batch sample variations accounted to be 80 and 91.7 %. A fitted model expressed by multiple linear regressions obtained with two organomercury species (methyl and ethyl) were recognized as independent variables explained about 90.04 % (ultrapure) and 90.85 % (salt water) traceability from sum of peak areas. Analysis of real samples gave relative standard deviation value of less than < 0.33 % indicating that good performance in terms of repeatability. Recovery .(was found to range from 75.62 – 95.46% (river water) and 73.44 - 91.14 % (sea water

کلمات کلیدی:

Chemometric, Organometals, Mercury species, Micro extraction